**For discussion on**
**12 March 2012**

# Legislative Council Panel on Information Technology and Broadcasting

# Progress Update on the Implementation of Digital Terrestrial Television Broadcasting

## Purpose

This paper updates Members on the latest progress of implementation of the digital terrestrial television (DTT) service.

## DTT Network Coverage

*Construction of DTT transmitting stations*

2. Since the commencement of DTT service at end-2007, the two domestic free television programme service licensees, namely Asia Television Limited (ATV) and Television Broadcasts Limited (TVB), have built and extended their digital broadcast network in a phased approach, with a view to expanding the DTT coverage progressively throughout the Hong Kong territory.

3. Following the launch of nine new DTT fill-in stations by end December 2011, a total of 29 digital broadcasting stations have been completed by ATV and TVB in accordance with the requirements stipulated in their respective fixed carrier licences. The DTT coverage has now reached more than 96% of the Hong Kong population. The 29 DTT transmitting stations and their respective coverage areas are set out in **Annex A**.

*Coverage of the DTT network*

4. The percentage of DTT network coverage is derived by ATV and TVB via computer modelling. In doing so, a conservative approach is adopted to avoid over-estimation of the coverage population in areas with marginal DTT signal strength. For these areas, there are however residents who can still receive stable DTT signal. It is thus necessary to

conduct surveys[1] to validate the effective DTT coverage in order to obtain a more accurate assessment of the network coverage. The current percentage of DTT network coverage is a combined result of the coverage derived by the computer model and that validated through surveys. ATV and TVB will continue to carry out validation work to confirm the effective coverage across the territory.

5. The two free TV broadcasters will further optimise the DTT network so as to maximise the overall DTT coverage. The aim is to bring the coverage on par with that of analogue television broadcasting which is close to 99% of the population. The Office of the Telecommunications Authority (OFTA) is examining, together with ATV and TVB, how to address the problem of television reception in those remote areas currently suffering from unsatisfactory television reception.

*On-line database for DTT coverage and reception*

6. To facilitate the checking of the DTT coverage status as well as completion of upgrading work of in-building coaxial cable distribution system (IBCCDS)[2] in residential or commercial buildings for DTT reception, OFTA has introduced an on-line database via its website (www.ofta.gov.hk) ever since DTT was launched. The provision of the database is well received by the general public. From December 2007 to mid-February 2012, more than 555 000 visits and over 2.3 million DTT coverage searches of the database have been made.

7. With additional covered areas brought by the nine newly launched fill-in stations, OFTA has renewed the on-line database in early 2012 to include the updated status of buildings/estates under the new DTT coverage areas and the latest status of completion of IBCCDS upgrading work for buildings/estates located in the newly covered areas.

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[1] Since early 2011, ATV and TVB have been carrying out surveys through telephone interview, questionnaire survey, on-site signal strength measurement, joint field survey with building management offices on DTT reception at buildings/estates etc., with a view to validating the effective DTT coverage as far as possible.

[2] In-Building Coaxial Cable Distribution System is a coaxial cable system installed inside a building for distributing and relaying signals for telecommunications, broadcasting and security services.

**DTT Programme Channels**

8. Currently, ATV and TVB are broadcasting 11 digital television programme channels, including both standard-definition television (SDTV) and high-definition television (HDTV), over the DTT platform via the three digital multiplexes[3] assigned to the two broadcasters. The viewing public can now enjoy an increased number of free television programme channels, from four to 11, when switching from analogue to digital television broadcasting. A full list of DTT programme channels of ATV and TVB is set out as follows -

| Channel number | Name of Channel | Programme Description |
|---|---|---|
| *ATV* | | |
| 11 | Home | Digital simulcast of ATV Home Channel |
| 12 | Asia | A variety of programmes in HDTV format |
| 13 | TVS | A Cantonese channel originated from the Guangdong province |
| 15 | CCTV 1 | Satellite live feed of China Central Television Channel 1, an integrated channel originated from the Mainland |
| 16 | World | Digital simulcast of ATV World Channel |
| 17 | Shenzhen Satellite Channel | Satellite live feed of Shenzhen Satellite Television Channel, a channel originated from Shenzhen |
| *TVB* | | |
| 81 | Jade | Digital simulcast of TVB Jade Channel |
| 82 | J2 Channel* | A variety of programmes focused on young audience |
| 83 | I News* | Programmes on news, finance and information |
| 84 | Pearl | Digital simulcast of TVB Pearl Channel |

[3] A multiplex is a digital transmission frequency channel which combines television programme materials and other data in digital form for transmission via a frequency channel. This makes multi-programme channel broadcasting feasible over a single multiplex. ATV and TVB share one multiplex to simulcast (i.e., simultaneously broadcast) their four analogue television programmes in digital format. In addition, each broadcaster takes up one additional multiplex to provide new digital television programme channels and services.

| Channel number | Name of Channel | Programme Description |
|---|---|---|
| 85 | High Definition Jade Channel* | A variety of HDTV programme with local and overseas productions |

* Interactive television service[4] is available on these digital channels

## DTT Receivers

*Market supply of consumer products*

9. The sale of integrated digital television (iDTV) continues to dominate the market sector of flat panel television sets. Currently about 95%[5] of the flat-panel television sets sold in the retail consumer electronics market are iDTVs whilst their retail price keeps decreasing with an average drop by about 15%[5] in 2011 as compared with that of the previous year (2010). More choices with competitive price for iDTV are now readily available in the market.

10. Although there is a gradual decline of sales of set-top box, there is still consumer demand of set-top box including those with the capability of digital recording[6]. The average retail price of set-top box without a hard disk maintains in the range of $700–$800[5]. An alternative and cheaper option for receiving DTT is available through the use of computer accessories (e.g. TV cards and USB tuners) but the consumers are required to equip with a computer capable to decode SDTV and HDTV pictures received through DTT broadcasting.

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[4] Interactive television service was launched by TVB in August 2008. Through a DTT receiver capable to support the interactive television service provided by TVB, viewers can access a variety of information including weather forecast, news headlines, Hang Seng index, delayed quotes of individual stock prices, etc.

[5] According to a retail audit report in 2011.

[6] By making use of the seven-day electronic programme guide available from DTT broadcasting and a mass storage media (e.g. external or built-in hard disk), digital recording has become relatively simple, convenient and user-friendly. The capability of recording HDTV programmes directly by equipping a DTT set-top box is also an advantage over an ordinary personal video recorder which is capable of recording television programmes in SDTV format only.

*Voluntary labelling scheme for DTT receivers*

11. To help consumers make informed choice when purchasing DTT receivers, the OFTA introduced in November 2007 a voluntary scheme to label DTT receivers [7] capable of receiving local DTT programme channels. A register is published and regularly updated on the Internet (www.digitaltv.gov.hk) for the public to check the brand names and models of DTT receivers that are authorised to use the labels. As at mid-February 2012, 156 models of DTT receivers are authorised to use the "higher-tier" label, including 38 set-top boxes and 118 iDTVs.

**DTT Take-up and Publicity**

*DTT Take-up*

12. The DTT take-up by the viewing public keeps growing steadily. According to the latest public survey conducted in December 2011, 68.6% (or some 1.6 million) of Hong Kong households are receiving DTT service via set-top boxes, iDTVs or computers. iDTV has become more popular when people choose to switch to DTT. Among households receiving DTT service, about 60% of them have iDTV. Details of the take-up situation from early 2008 to December 2011 are set out in **Annex B**.

*Publicity*

13. Following the launch of the nine new DTT fill-in stations (see paragraph 3 above), we have arranged to issue a joint letter with ATV and TVB to the respective building management offices or owners of buildings located in the newly covered areas to encourage them to undertake upgrading work, whenever necessary, for their IBCCDS for reception of DTT services. Leaflets are also distributed to the community through the public enquiry service centres of district offices and public libraries.

[7] DTT receivers labelled as "basic-tier" are capable of receiving the four TV programme channels simulcast in the digital format, whereas those labelled as "higher-tier" are capable of receiving all DTT channels of both SDTV and HDTV programmes.

14. To enhance public awareness of the benefits of DTT, we have organised an exhibition at the InnoCarnival 2011[8] last November. A live television demonstration for both analogue and DTT services was arranged at the exhibition booth to illustrate to visitors the benefits of DTT over analogue television services. Over 6 000 persons visited our exhibition booth. Most of the guests visiting the DTT booth appreciated the benefits of DTT and found them impressive.

15. To further encourage the viewing public to switch to digital television broadcasting, a series of roving exhibitions is being arranged at various shopping centres in the next two months. The public can appreciate the benefits of DTT through live demonstration of analogue and DTT services. Depending on the feedback, roving exhibitions will be arranged in more shopping centres across different districts.

*Website and enquiry hotline*

16. A dedicated digital television website (www.digitaltv.gov.hk) is available for the public to understand more about DTT broadcasting. Relevant information with regular updates is publicised to the industry and the viewing public. In addition, OFTA maintains both hotline and e-mail services to handle public enquiries on DTT. From end December 2007 to mid February 2012, OFTA handled over 26 000 public enquiries regarding DTT. About 64% of these enquiries are related to coverage, while the others concerned communal aerial system upgrade, reception of analogue television, and various reception issues of DTT receivers, etc.

## Way Forward

17. The Government will continue to closely monitor the implementation of DTT and take necessary measures to facilitate a smooth migration from analogue television to DTT.

Commerce and Economic Development Bureau
Office of the Telecommunications Authority
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[8] To promote innovation and technology culture to the general public, the Innovation and Technology Commission has organised an event called InnoCarnival from 5 to 13 November 2011 at the Hong Kong Science Park.

**Annex A**

## The 29 DTT Transmitting Stations Currently In Service

| No. | Name of Station | Coverage Areas (note) | Date of Launch |
|---|---|---|---|
| 1 | Temple Hill | Quarry Bay, North Point, Wan Chai, Central & Western, Yau Tsim Mong, Kowloon City, Wong Tai Sin, Sham Shui Po, Sha Tin, Cheung Chau, Discovery Bay | 31 December 2007 |
| 2 | Kowloon Peak | Siu Sai Wan, Chai Wan, Shau Kei Wan, Sai Kung, Tseung Kwan O, Yau Tong, Kwun Tong | July 2008 |
| 3 | Golden Hill | Lai Chi Kok, Kwai Chung, Tsing Yi, Tsuen Wan, Ting Kau, Sham Tseng, Tsing Lung Tau | |
| 4 | Castle Peak | So Kwun Wat, Tuen Mun, Lam Tei, Yuen Long, Tin Shui Wai, Tung Chung | |
| 5 | Cloudy Hill | Ma On Shan, Ma Liu Shui, Tai Po, Fanling, Sheung Shui, Lo Wu | Early August 2008 |
| 6 | Lamma Island | Repulse Bay, Wong Chuk Hang, Ap Lei Chau, Aberdeen, Pok Fu Lam, Lamma Island | |
| 7 | Mount Nicholson | Happy Valley, Causeway Bay, Wan Chai | |

| No. | Name of Station | Coverage Areas (note) | Date of Launch |
|---|---|---|---|
| 8 | Sheung Yeung Shan | Tseung Kwan O, Sheung Yeung, Ha Yeung, Sheung Sze Wan | 31 December 2009 |
| 9 | Sai Wan Shan (Chai Wan) | Chai Wan, Siu Sai Wan | |
| 10 | Piper's Hill | Cheung Sha Wan, Sham Shui Po | |
| 11 | Brick Hill | Aberdeen, Shouson Hill, Repulse Bay, Chung Hom Kok | |
| 12 | Beacon Hill | Hin Tin, Tai Wai | |
| 13 | Hill 374 (Yuen Long) | Yuen Long, Mong Tseng Wai, Shui Bin Tsuen | 31 December 2010 |
| 14 | Pottinger Peak | Shek O, Hok Tsui (Cape D'Aguilar) | |
| 15 | Stanley | Stanley, Red Hill | |
| 16 | Cheung Chau | Cheung Chau | |
| 17 | Hill 141 (Tai Lam Chung) | Tai Lam Chung | |
| 18 | Tai Po Tsai | Tai Po Tsai | |
| 19 | Robin's Nest | Shan Tsui, Yim Liu Ha, Luk Keng, Ping Che , Kwan Tei | 7 January 2011 |
| 20 | Tai O | Tai O | |

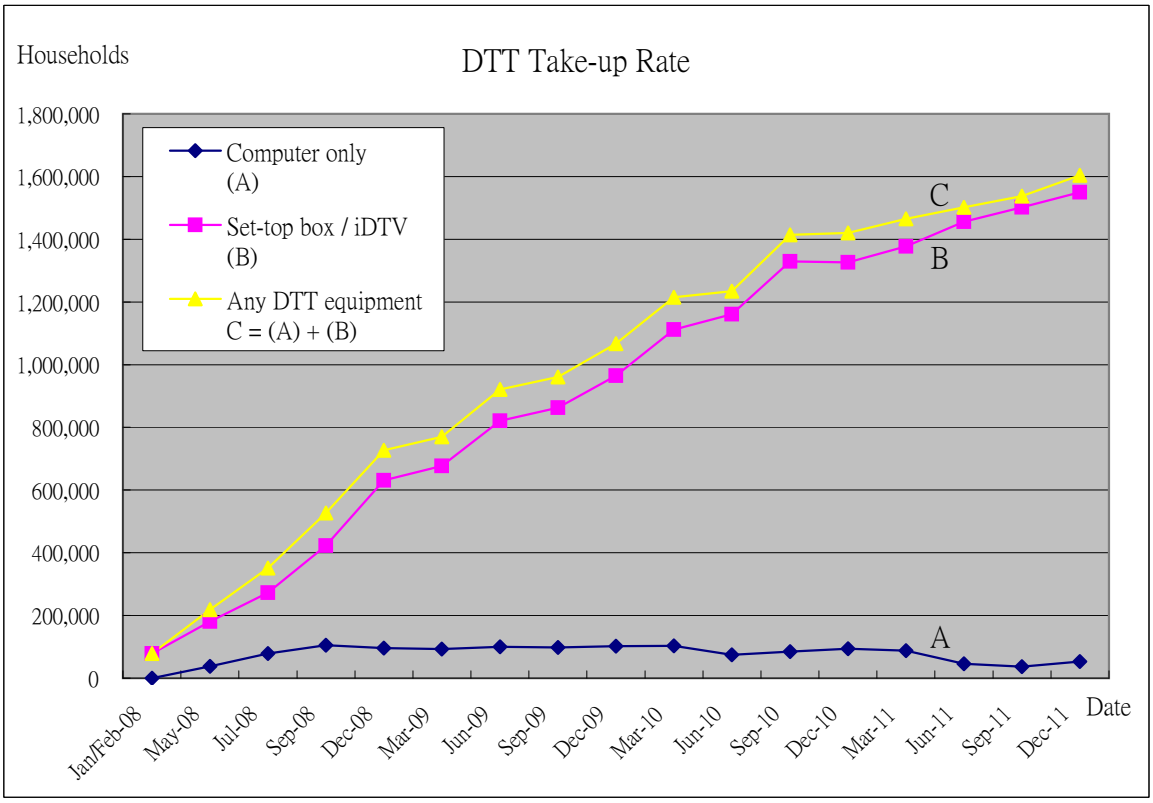
| No. | Name of Station | Coverage Areas (note) | Date of Launch |
|---|---|---|---|
| 21 | Hill 297 (Yuen Long) | Shap Pat Heung, Tai Tong | 31 December 2011 |
| 22 | Hill 275 (Lantau Island) | Mui Wo, Pui O, Tong Fuk, Cheung Chau | |
| 23 | Chiu Keng Wan Shan | Tiu Keng Leng | |
| 24 | Ap Lei Chau Aberdeen | Ap Lei Chau, Aberdeen | |
| 25 | Kau Wa Keng | Kau Wa Keng San Tsuen, Kau Wa Keng Old Village | |
| 26 | Ying Pun | Ngau Tam Mei, Lin Tong Mei | |
| 27 | Sham Tseng | Sham Tseng Village, Sham Tseng San Tsuen, Sham Tseng Kau Tsuen | |
| 28 | Tung Chung | Lung Tseng Tau, Wong Ka Wai, Ha Ling Pei, Sheung Ling Pei, Ma Wan New Village, | |
| 29 | Pok Fu Lam | Pok Fu Lam Village | |

Note: The regions listed above are covered entirely or partially by the DTT signals.

# Digital Terrestrial Television (DTT) Take-up Rate (January 2008 - December 2011)

Total Hong Kong households (2008) = 2,251,900
Total Hong Kong households (2009) = 2,293,200
Total Hong Kong households (2010) = 2,317,500
Total Hong Kong households (2010) = 2,337,300

| | DTT Households receiving DTT via (note) | | | | | |
|---|---|---|---|---|---|---|
| | Computer only (A) | | Set-top box / iDTV (B) | | Any DTT equipment C = (A) + (B) | |
| | No. of Households | Cumulative Take-up Rate (%) | No. of Households | Cumulative Take-up Rate (%) | No. of Households | Cumulative Take-up Rate (%) |
| Jan/Feb-08 | N/A | N/A | 78,156 | 3.5% | 78,156 | 3.5% |
| May-08 | 38,260 | 1.7% | 180,474 | 8.0% | 218,734 | 9.7% |
| Jul-08 | 78,833 | 3.5% | 272,321 | 12.1% | 351,154 | 15.6% |
| Sep-08 | 104,782 | 4.7% | 422,181 | 18.7% | 526,963 | 23.4% |
| Dec-08 | 95,744 | 4.3% | 631,205 | 28.0% | 726,948 | 32.3% |
| Mar-09 | 92,670 | 4.0% | 676,941 | 29.5% | 769,610 | 33.6% |
| Jun-09 | 100,435 | 4.4% | 820,604 | 35.8% | 921,039 | 40.2% |
| Sep-09 | 97,833 | 4.3% | 862,612 | 37.6% | 960,445 | 41.9% |
| Dec-09 | 102,033 | 4.4% | 965,232 | 42.1% | 1,067,265 | 46.5% |
| Mar-10 | 103,342 | 4.5% | 1,111,607 | 48.0% | 1,214,949 | 52.4% |
| Jun-10 | 74,035 | 3.2% | 1,160,572 | 50.1% | 1,234,606 | 53.3% |
| Sep-10 | 85,243 | 3.7% | 1,329,281 | 57.4% | 1,414,525 | 61.0% |
| Dec-10 | 94,416 | 4.1% | 1,326,194 | 57.2% | 1,420,611 | 61.3% |
| Mar-11 | 87,333 | 3.7% | 1,377,544 | 58.9% | 1,464,878 | 62.7% |
| Jun-11 | 46,342 | 2.0% | 1,455,662 | 62.3% | 1,502,004 | 64.3% |
| Sep-11 | 36,409 | 1.6% | 1,501,450 | 64.2% | 1,537,859 | 65.8% |
| Dec-11 | 53,403 | 2.3% | 1,550,278 | 66.3% | 1,603,681 | 68.6% |




Note: Projected number of households based on the survey result of an average sample size of 1000 households randomly selected by computer aided telephone interviewing.